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वस्त्रादि — जूट बुनाई के लिए इनसेट मेल  
वायर हील्ड्स — विशिष्टि  
( तीसरा पुनरीक्षण )

**Textiles — Inset Mail Wire Healds for  
Jute Weaving — Specification**  
( *Third Revision* )

ICS 59.120.30

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## FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Textile Machinery and Accessories Sectional Committee had been approved by the Textiles Division Council.

This standard was subsequently revised in 1974 and 1990. The standard has been revised to incorporate the following changes:

- a) References to Indian Standards have been updated; and
- b) Marking clause has been modified.

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Indian Standard***TEXTILES — INSET MAIL WIRE HEALDS FOR JUTE WEAVING — SPECIFICATION***( Third Revision )***1 SCOPE**

This standard specifies requirements for inset mail wire healds for use in jute weaving.

**2 REFERENCES**

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of these standards.

**3 MATERIAL****3.1 Wire**

Carbon steel wire of  $0.71 \text{ mm} \pm 0.02 \text{ mm}$  diameter with carbon content between 0.35 percent to 0.65 percent shall be used. The tensile strength of wire shall be 1100 MPa (or 110 kgf/mm<sup>2</sup>).

NOTE — Wire of  $0.90 \text{ mm} \pm 0.02 \text{ mm}$  diameter may be used subject to the agreement between the purchaser and the manufacturer.

**3.2 Inset Mail**

Hardened and tempered steel wire or strip shall be used. The hardness shall be between 270 HV and 300 HV when determined by the method prescribed in IS 1501 (Part 1).

**4 MANUFACTURE****4.1 Fixing of Inset Mail**

The inset mail shall be inserted between two wires of the heald. The wires shall be tightly wound round an inset mail with twist as shown in Fig. 1. The position of the inset mail shall be at least 10 mm away from the centre of the heald towards the top end loop. However, the inset may be at the centre, provided the same is agreed to between the purchaser and the manufacturer.

**4.2 Plating**

The heald shall be tin plated by using tin anodes for electroplating conforming to IS 2384 and the plating

shall be smooth, free from cracks and other flaws which are likely to cause yarn breakage. The grooves formed by two adjoining wires shall be smooth and regular. The coating mass of tin plating shall be  $5.5 \text{ g/m}^2 \pm 0.7 \text{ g/m}^2$  when tested according to IS 1327.

**4.3 Finish**

All joints shall be smooth and free from sharp corners. The plating and soldering of wire healds shall not cause gloss silk to be caught at the mail or wire when the heald is repeatedly rubbed with it.

**4.4 Painting**

The top end loops shall be distinctly painted with air drying type of paint (*see* IS 168) in order to avoid the healds being put on the heald carrying rods with the heald frame upside down.

**5 REQUIREMENTS****5.1 Shape**

The shape of inset mail wire healds for jute weaving shall be generally as shown in Fig. 1. The major axis of both the end loops shall coincide with the major axis of the wire heald. The plane of the inset mail and that of the end loops shall be at an angle of  $45^\circ \pm 5^\circ$  unless otherwise agreed to between the purchaser and the manufacturer. If the wire heald is held vertical with the top end upward the minor axis of the inset mail shall be in the 'Z' direction as shown in Fig. 2. The twisted portion near the end-loop shall have two turns.

**5.2 Dimensions**

The dimensions and the corresponding tolerances of the two varieties of inset mail wire healds used for jute weaving shall be as given in Table 1. Other dimensions as agreed to between the purchaser and the manufacturer may be followed subject to the tolerances as given in Table 1.

**6 OTHER REQUIREMENTS**

The inset mail eyes shall be perfectly smooth and free from sharp corners. They shall be oval shaped and grooved at periphery.

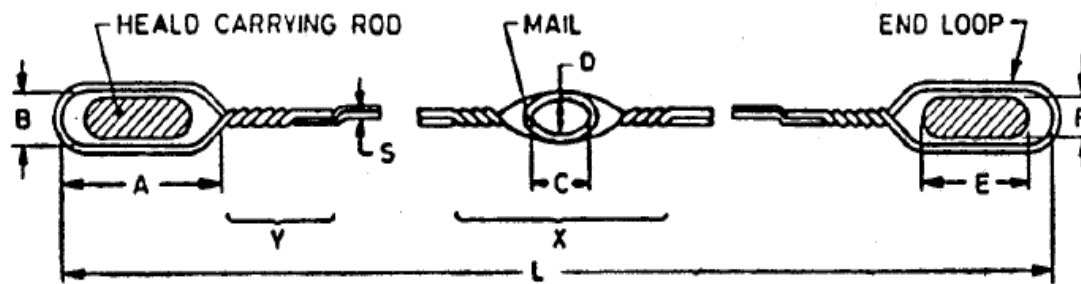


FIG. 1 INSET MAIL WIRE HEALDS FOR JUTE WEAVING

Table 1 Dimensions of Inset Mail Wire Healds for Jute Weaving

(Clause 5.2 and Fig. 1)

Sl No.	Variety No.	Length (L) mm	End Loop		Mail Eye	
			Length, mm	Width, mm	Inside Length, mm	Inside Width, mm
			(A)	(B)	(C)	(D)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	1	280	22.0	6.5	6.0	3.0
ii)	2	330	18.0	5.0	or 7.6	or 4.2
					or 10.0	or 6.0
Tolerance, mm	—	± 1.0	± 1.3	± 0.5	± 0.125	± 0.125

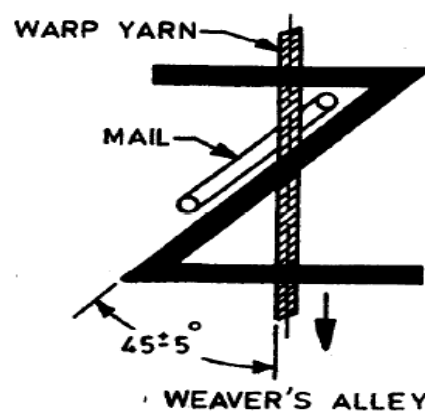


FIG. 2 DIRECTION OF MINOR AXIS OF MAIL

## 7 SAMPLING

To ascertain the conformity of inset mail wire healds for jute weaving to the requirements of this specification single sampling plan with Inspection Level I and Acceptance Quality Level (AQL) of 2.5 percent given in Table 1 and Table 2 of IS 2500 (Part 1) shall be followed unless otherwise agreed to between the purchaser and the manufacturer.

## 8 MARKING

**8.1** Each bundle or package shall bear the following information:

- Name of the product;
- Indication of the source of manufacture;
- Variety No.;
- Gross and net mass;
- Lot/batch number;
- Country of origin; and

- Date of manufacture.

## 8.2 BIS Certification Marking

The product conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the product may be marked with the Standard Mark.

## 9 PACKING

A set of 250 inset mail wire healds for jute weaving after having been applied with a suitable rust preventive coating and threaded through the end loops by adequately strong cotton thread, shall form a bundle. These bundles shall then be packed in paper (*see* IS 3962) or polyethylene bags and made into suitable packages.

## ANNEX A

(Clause 2)

### LIST OF REFERRED STANDARDS

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
IS 168 : 2016	Ready mixed paint, air drying for general purpose — Specification ( <i>fourth revision</i> )	IS 2384 : 1963	Specification for tin anodes for electroplating
IS 1327 : 1988	Method for determination of mass of tin coating on tinplate ( <i>third revision</i> )	IS 2500 (Part 1) : 2000/ISO 2859-1 : 1999	Sampling procedures for inspection by attributes: Part 1 Sampling schemes indexed by acceptance quality limit (AQL) for lot - by - lot inspection ( <i>third revision</i> )
IS 1501 (Part 1) : 2020/ISO 6507-1 : 2018	Metallic materials — Vickers hardness test: Part 1 Test method ( <i>fifth revision</i> )	IS 3962 : 1967	Specification for waxed paper for general packaging

## ANNEX B

(Foreword)

## COMMITTEE COMPOSITION

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### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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